WHAT IS CLAIMED IS:

1.   A mobile terminal used for a mobile communication system simultaneously providing multiple services through a wireless traffic channel, the mobile terminal comprising:

5   a vocoder unit, which vocodes voice data with a variable rate;

a multiplexing/de-multiplexing unit, which multiplexes or de-multiplexes at least one service of a voice service, a text services, and an image services;

10   at least one CMS (concurrent multiple service) processing unit, which segments a message corresponding to the service and processes to-be-multiplexed transmitted data and de-multiplexed received data; and

a wireless modem unit, which transmits the framed message

15   to a counterpart mobile terminal through a up-link wireless connection, and forms a multiplexed frame in a wireless matched format, and transmits and receives the multiplexed frame through a mobile communication network.

20   2.   The mobile terminal according to claim 1, wherein the multiplexing/de-multiplexing unit comprises:

a CMS transmitting unit, which multiplexes the CMS data transferred by the CMS processing unit and a voice frame having a variable rate; and

25   a CMS receiving unit, which de-multiplexes a frame

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transferred by the wireless modem unit to extract the CMS data.

3.   The mobile terminal according to claim 2, wherein the CMS
transmitting unit comprises:

5   a memory, which stores the CMS data transferred by the CMS
processing unit;

a voice frame inspecting unit, which inspects a state of
the voice frame transferred by the vocoder unit; and

a frame generating unit, which multiplexes the voice frame

10   and the CMS data to generate a single frame in accordance with
the inspection result of the voice frame inspecting unit.

4.   The mobile terminal according to claim 3, wherein the frame
generating unit generates the single frame including the CMS data

15   when the variable rate of the voice frame transferred by the vocoder
unit is not a full rate.

5.   The mobile terminal according to claim 2, wherein the CMS
receiving unit comprises:

20   a CMS data checking/detecting unit, which checks whether
or not the CMS data is included into a frame transferred by the
wireless modem unit and detects the CMS data; and

a memory, which stores the CMS data detected by the CMS data
checking/detecting unit.

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6.   The mobile terminal according to claim 1, wherein the CMS processing unit comprises:

a transmitting/receiving interfacing unit, which matches the mobile terminal with an external CMS data terminal; and

a CMS managing unit, which converts the CMS data transferred by the transmitting/receiving interfacing unit into a multiplexable CMS data to transfer the multiplexable CMS data to the multiplexing/de-multiplexing unit, or converts the CMS data stored in the multiplexing/de-multiplexing unit into a user-checkable CMS data to transfer the user-checkable CMS data to the transmitting/receiving interfacing unit.

7.   The mobile terminal according to claim 6, wherein the CMS managing unit comprises:

a data segmenting unit, which segments the CMS data transferred by the transmitting/receiving interfacing unit into a good many multiplexable CMS data segments;

a data transferring unit, which outputs the segmented CMS data segments with a predetermined time period to the multiplexing/de-multiplexing unit, or fetches and outputs the CMS data stored in the multiplexing/de-multiplexing unit with a predetermined time period; and

a data assembling unit, which assembles the CMS data transferred by the data transferring unit.

8.   The mobile terminal according to claim 7, wherein the data segmenting unit and the data assembling unit further comprise their own memory for temporarily storing the segmented or assembled CMS data.

9.   The mobile terminal according to claim 7, wherein the predetermined time period is equal to a frame transmitting period of the wireless traffic channel.

10.   The mobile terminal according to claim 1, wherein the service includes at least one of a name card serve, an image service, and a file transfer service.

11.   A method of multiplexing/de-multiplexing multiple services to simultaneously provide the multiple services through a wireless traffic channel, the method comprising steps of:

    segmenting CMS data transferred by an external CMS data terminal into multiplexable size CMS data segments;

    inspecting a variable rate of a voice frame transferred by a vocoder unit and determining whether or not the segmented CMS data can be included into a single frame;

    multiplexing the segmented CMS data and the voice frame to generate the single frame in accordance with the determination result and transferring the single frame to a wireless modem unit.

12. A method of multiplexing/de-multiplexing multiple services to simultaneously provide the multiple services through a wireless traffic channel, the method comprising steps of:

extracting CMS data from a frame transferred by a wireless

5 modem unit and storing the extracted CMS data;

fetching the stored CMS data with a predetermined time period and assembling the CMS data; and

transferring the assembled CMS data to an external CMS data terminal through a transmitting/receiving interfacing unit.

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